

United States
Department of
Agriculture

Forest
Service

Colville
National
Forest

Supervisor's Office
765 S. Main
Colville, WA

Reply To: 2672

Date: April 14, 2015

Subject: Sensitive Plant Species Biological Evaluation for LeClerc Creek Grazing
Allotment Management Project
To: Newport-Sullivan Lake District Ranger

I. INTRODUCTION

The LeClerc Creek analysis area is within the LeClerc Subwatershed and the purposes of the project are (USDA FS 2014e):

- Provide protection or enhancement of ecosystem values affected by grazing including streams, fisheries habitat, riparian areas, sensitive plant species, terrestrial wildlife habitats, vegetation, and recreation sites.
- Compliance with Section 504 of the 1995 Rescissions Act (P.L. 104-19). The Act requires that NEPA analysis be conducted on all range allotments by 2019 and that new permits be issued unless there are significant environmental concerns.
- Analyze whether to continue authorizing grazing in the LeClerc Creek allotment.
- Update allotment management plans to reflect current laws, regulations and management direction and provide for adaptive management.
- Authorize construction of needed range improvement projects, including fence lines, water developments and related facilities and the redesign of existing range improvement projects.

II. EFFECTS TO SPECIES

1. Affected Environment

A review of the following sources provided the basis for the pre-field review:

Federally listed and candidate species (USDI FWS 2014).

Natural Resources Management Database for sensitive plant sightings and surveys database (USDA FS 2014d).

Region 6 Regional Forester Special Status Species List (USDA FS 2011).

Washington Natural Heritage Program (WNHP 2014, WNHP and USDI BLM 2014).

The Colville National Forest is entirely included within the boundaries of Ferry, Stevens, and Pend Oreille counties in northeastern Washington. For these three counties, the USDI Fish and Wildlife Service lists Ute ladies-tresses (*Spiranthes diluvialis*) as threatened under the Endangered Species Act of 1973. It is not documented from the project area. Whitebark pine (*Pinus albicaulis*) is a Candidate species for listing (USDI FWS 2014). It is documented from the project area and is a sensitive species.

Fifty vascular and non-vascular plant species listed as sensitive on the Regional Forester's Special Status Species List (2011) are documented or suspected for the Colville National Forest (Appendix 1).

In addition to whitebark pine, four other sensitive species are known from the analysis area: western moonwort (*Botrychium hesperium*), poor sedge (*Carex magellanica ssp. irrigua*),

beaked sedge (*Carex rostrata*) and crested shield fern (*Dryopteris cristata*). Each is known from one Element Occurrence (population) in the project area. They occur in the pastures shown in Table 1.

Within two miles of the project area, five other sensitive species are documented: meadow pussy-toes (*Antennaria corymbosa*), least bladder milk vetch (*Astragalus microcystis*), green keeled cotton-grass (*Eriophorum viridicarinatum*), black snake-root (*Sanicula marilandica*), and prairie cordgrass (*Spartina pectinata*). Potential habitat exists in the analysis area for an additional 61 suspected sensitive or strategic plant species (Appendix 1).

During the pre-field review, species that normally occur well below the elevation range of the project area or those where typical habitat is not present are omitted from further analysis. Field reconnaissance is limited to areas within, adjacent or near the project area where proposed ground disturbing activities may affect sensitive plant species. Intuitive controlled plant surveys were conducted in 2014 (August 19 and September 8), 2013 (July 6, 15, 16; August 5, 28), 2012 (August 22, 27), 2010 (August 24-26, September 17) and 2008 (August 19, 27; September 2-3, 9, 16). During these surveys one new sensitive plant subpopulation of poor sedge was found.

The intuitive controlled method first involves walking through the project area and the perimeter of the potential habitat. Next, the surveyor conducts a complete examination of specific areas of the project or walks more than once through the area. One new subpopulation of poor sedge was found through these surveys. A map showing areas surveyed is on file at the Supervisor's Office.

Table 1. Sensitive plants with threats and trends by pasture.

Pastures	Sensitive Plants	Population Threats	Plant Population Health, Vigor, and Trends - Note: There is not enough information to establish population trends for any of the sensitive plants in the project area.
4 th of July	Western moonwort	Yellow hawkweed (<i>Heracium caespitosum</i>)	Three very small subpopulations are known.
Mineral	Whitebark pine		Whitebark pines were surveyed through a white pine blister rust project.
Upper Bunchgrass	Beaked sedge	Reed canarygrass (<i>Phalaris arundinacea</i>), Canada thistle (<i>Cirsium arvense</i>)	The population has been visited once.
	Poor sedge (two populations present)		One poor sedge population has been visited once.
			The other poor sedge population has documented impacts from cattle trampling and grazing, as well as the presence of a beaver dam.
	Whitebark pine		Whitebark pines were surveyed through a white pine blister rust project.
Lower Bunchgrass	Crested shield-fern	Cattle trampling and grazing.	Recorded population numbers fluctuate, depending on timing of the surveys (before or after cattle in the area) and size of area surveyed.

2. Framework

The proposed project action should comply with Forest Service regulations included in the Forest Service Manual and Handbook, Threatened, Endangered and Sensitive Plants and Animals – Pacific Northwest Region (2005). These regulations direct the agency to ensure that management activities do not contribute towards listing or cause a loss of viability of species

identified as “sensitive” by the Regional Forester. “A sensitive plant is one thought to be vulnerable to becoming threatened or endangered due to low population levels or significant threats to its habitat” (USDA FS 2005).

The Forest Service Manual (USDA FS 2005) directs sensitive plant management on National Forest Service (NFS) lands: “All actions are taken to assure that management activities do not jeopardize the continued existence of sensitive species or result in an adverse modification of their essential habitat.” In addition, “...biological evaluations, biological assessments and consultations with the U.S. Fish and Wildlife Service will be done, as appropriate, to ensure that no activity permitted, funded, or carried out by the Forest Service jeopardizes the continued existence of a threaten or endangered species or adversely modifies the essential habitat of such species.”

The proposed project action should also comply with the standards and guidelines described in the Colville National Forest – Land and Resource Management Plan (1988), “No actions that are likely to jeopardize the continued existence of any plant or animal species or cause the need for listing any species threatened or endangered will be authorized, funded, or carried out by the Colville National Forest. When evaluating the potential effects of an activity on any species, the species status, its dependency on the affected habitat, and the extent or limitation of the habitat, will be evaluated as they influence the viability of populations within the Forest or the range of the species.”

The Colville National Forest is mandated to protect species viability for plants listed on the 2011 Final Region 6 Regional Forester Special Status Species List (USDA FS 1988, page 4-42). Botanical surveys on NFS lands are conducted for sensitive species documented or suspected to occur in planning areas with suitable habitat.

3. Environmental Consequences

I conducted a risk assessment of the potential effects for sensitive plant species according to procedures outlined in Forest Service Manual (FSM) 2672.42, 8/90, R-6 Supp. 2600-90-5. Four alternatives are analyzed (USDA FS 2014a and 2014b). A summary of the effects to sensitive plants by alternative is displayed in Table 2.

The Forest Plan (1988, page 4-42) states that “No actions that are likely to jeopardize the continued existence of any plant or animal species or cause the need for listing any species threatened or endangered will be authorized, funded, or carried out by the Colville National Forest. When evaluating the potential effects of an activity on any species, the species status, its dependency on the affected habitat, and the extent or limitation of the habitat, will be evaluated as they influence the viability of populations within the Forest or the range of the species.” Forest Plan compliance by alternative is shown in Table 2.

Table 2. Summary of the effects of the alternatives on sensitive plants and compliance with the Forest Plan. (Note: There are no known sensitive plants in Dry Canyon Pasture.)

Pastures – Sensitive Plants	Alternative A – Current Management	Alternative B – No Grazing	Alternative C – Preferred and Alternative D
4th of July - western moonwort	Negative effects from grazing and noxious weeds under the current management would continue.	No grazing would have a positive impact on all sensitive plant populations.	Since 4 th of July Pasture would not be grazed, the western moonwort would not be impacted by cattle.
Mineral - whitebark pine			The proposed change in the northern boundary of the pasture means the areas where the trees grow would be excluded from cattle grazing and trampling, so would not be impacted by them.
Upper Bunchgrass - beaked sedge, poor sedge (2 populations), whitebark pine			The proposed change in the northern boundary of the pasture means the areas where the trees and one of the sites of the poor sedge grow would be excluded from cattle grazing and trampling, so would not be impacted by them.
Lower Bunchgrass - crested shield-fern			Proposed fencing would protect these plants.
Forest Plan Compliance (page 4-42)	Is not compliant with the Forest Plan by negatively impacting sensitive plant viability.	Is compliant with the Forest Plan by positively impacting sensitive plant viability.	Is compliant with the Forest Plan by positively impacting sensitive plant viability.

Alternative A No Change - Current Management

The option to reauthorize livestock grazing in the allotment as it is currently being grazed was considered. There would be no change to existing allotment or pasture boundaries, season of use, and permitted number of cow/calf pairs (101). No new improvements would be installed, with the exception of a riparian enclosure on the lower Middle Branch LeClerc Creek that was planned and approved prior to this project. Other planned management activities would continue. Negative effects from grazing and noxious weeds under the current management would continue.

Alternative B – No Action (No Grazing)

No action in grazing management planning is synonymous with “no grazing” and means that livestock grazing would not be authorized within the project area, so the allotment would be closed. Additionally, no range improvements or resource protection projects would be implemented. Current Forest-wide programs such as noxious weed management and road maintenance would continue. This alternative would provide the most protection to soil conditions and wetland functions. Without cattle grazing and trampling, wetlands negatively impacted by cattle would recover, as well as sensitive plant populations in those areas. No grazing would have a positive impact on the sensitive plant populations in the project area.

Alternative C – Proposed Action

This alternative would continue to reauthorize grazing in the allotment with modifications to the existing permit to address management and resource concerns with changes to the boundaries, administration and management of the allotment (USDA FS 2014b), as outlined below.

1. Implement Adaptive Management - Including a Monitoring Plan - The range specialist or range staff would coordinate collection of monitoring data. If monitoring indicates that standards for riparian or upland habitats, compliance, and utilization are not being met, adjustments in the way the allotment is managed would be initiated. These could include a change in the number of authorized cow/calf pairs, a change in the grazing season, a change in the dates of authorized use in a given pasture, new range improvements, etc. Any sites where new range improvement projects are proposed for construction would have all applicable surveys completed and clearances issued.

2. Livestock Numbers – Initial stocking rates for the allotment would be 101 cow/calf pairs, and based on monitoring information collected through the adaptive management and monitoring plan, livestock numbers could be modified in the future if there is a demonstrated need based on monitoring results of forage utilization, impacts to riparian or other natural or cultural resources, etc.

3. Timing of Grazing — Change the turn-on date for the allotment from June 1 to June 15. This would provide an extra two weeks during late spring for grizzly bears, elk, deer, and other wildlife to utilize green forage resources in the absence of permitted livestock. As the adaptive management strategy is implemented and monitoring information is analyzed and assessed, dates may be adjusted. However, turn-on date for permitted grazing would not occur prior to June 15th. The end of the normal use period would be extended from October 1 (current) to October 15. The permittee would retain their ability to request an extension to the grazing season beyond October 15. Any request to extend the grazing season would need to be submitted in writing and approved or denied by the Forest Service, as described in FSM 2200.

4. Allotment/Pasture Boundary Changes

Fourth of July Pasture – Remove this pasture and associated improvements from the allotment. Presently it is not contiguous to the rest of the allotment, so cattle must be trailed outside the allotment boundary to access the pasture. Recent timber harvest on state lands in the pasture has opened up once dense stands of trees, and rendered existing movement controls such as cattle guards, ineffective. Substantial investments in fencing and other infrastructure would be needed to prevent cattle movement off the pasture and consequently, off the allotment.

Lower Bunchgrass Pasture – Move the southeastern boundary of this pasture to the west side of the Middle Branch LeClerc Creek, effectively excluding approximately 2.3 miles of the creek from the allotment. These stream reaches presently exhibit the most apparent impacts from livestock grazing (bank sloughing, riparian shrub utilization, etc.) in the allotment. Shift the southern boundary of the pasture to the north, effectively removing an additional 0.5 mile of creek and areas of deciduous scrub/shrub wetlands from the allotment. Move the western pasture boundary to the ridgeline east of FR 1935105, and add the area between the old and new pasture boundaries to the Mineral Creek Pasture. Block existing stock trails or other paths that cattle could use to drift outside the new allotment boundary with sections of fencing, slash piles or other means.

Dry Canyon Pasture – Connect this pasture to the rest of the allotment by adding the area between the West Branch LeClerc Road (County Road 3503) and the Lower Bunchgrass Pasture. Block existing stock trails or other paths that cattle could use to drift outside the new allotment boundary with sections of fencing, slash piles or other means.

Upper Bunchgrass and Mineral Creek Pastures – Move the northern boundary of these pastures from Molybdenite Ridge south to where the slope begins to flatten out. Most of the area that would be excluded is already not receiving livestock use due to dense stands of timber, steep topography, and a lack of good forage. Block any existing stock trails or other paths that cattle could use to drift outside the new allotment boundary with sections of fencing, slash piles or other means.

5. Range Improvements – Range improvements would be completed to better control and distribute livestock across the allotment, and reduce local impacts to riparian areas and other habitats. These include allotment boundary fencing, pasture fencing, removal of old fencing, installation of cattle guards, and water development.

6. Exclosure Fencing – install fencing to protect sensitive plants (T36N R44E section 20 NW/SE)

7. New Access Route to Hanlon Meadow – This meadow is located in the Lower Bunchgrass Pasture in T36N R44E sections 20 and 29. The meadow contains a livestock holding pen and corral which the permittee uses to release and gather up cows.

An approximately 800 foot long section of the old Middle Branch LeClerc Road presently provides road access to the meadow. This road segment impinges on a scrub/shrub wetland on the Middle Branch LeClerc Creek. For this reason, the road segment would be obliterated to restore the hydrologic integrity of the wetland. A new access route to the meadow would be provided via FR 1935116. A short spur road (approximately 600 feet) would be built from FR 1935116 to the meadow on an old, existing road template. The gate that is presently on the entrance of FR 1935116 would then be moved approximately 200 feet up the road, in order to maintain open road access to the meadow.

8. Harden/Improve Stream Crossings

Harden the stream crossing inside the holding pen and add exclosure fencing.

Improve two existing hardened crossings

T36N R44E section 20 SE1/4 SE1/4

T37N R44E section 32 SE1/4 SW1/4

Develop 1 new hardened crossing, approximate location:

T37N R44E section 33 SW1/4 SW1/4

9. Implement a Deferred Rotation Grazing Strategy.

Deferred rotation means that one portion of the allotment is grazed early season, thereby deferring grazing on the remainder of the allotment and allowing for plant growth and seed production to occur. This strategy helps to maintain plant health and vigor as well as species diversity. The allotment would feature 4 pastures- Lower Bunchgrass, Upper Bunchgrass, Mineral Creek and Dry Canyon.

10. Expand/Improve the Diamond City Corrals to Aid in Loading & Unloading Cattle & Provide a Catch Pen

Expand the catch pen fences to make the catch pens larger if needed, provide a loading chute for getting cattle onto and off of stock trucks (T36N R44E section 18 SW1/4 SE1/4).

11. Utilize existing vegetation to reduce drift potential between Mineral Creek and Lower Bunchgrass Pastures.

There are currently areas where cattle are able to drift between pastures in T36N R44E section 8. Existing vegetation would be used to deter cattle drift and create a more effective barrier.

Methods utilized may include directional falling, brush barriers, placement of root wads or others.

In summary, the proposed changes to the boundaries, administration, and management of the allotment under Alternative C would positively affect sensitive plant species:

- **Whitebark Pine in Mineral Creek and Upper Bunchgrass Pastures** – The proposed boundary changes would exclude the locations and habitat of these trees from cattle trampling and grazing.
- **Beaked Sedge and Poor Sedge in Upper Bunchgrass Pasture** – The proposed boundary change would exclude locations of these sedges from cattle trampling and grazing.
- **Western Moonwort in Fourth of July Pasture** – This pasture would be removed from the allotment and cattle grazing.
- **Poor Sedge in Upper Bunchgrass Pasture** – Proposed range management changes are designed to reduce potential impacts caused by cattle to these sites, including monitoring and actively moving cattle.
- **Crested Shield Fern in Lower Bunchgrass Pasture** – Proposed fencing for this pasture would exclude cattle from the wetland where this plant occurs.

Since the intent of some of the proposed changes is to restore riparian areas, they should have positive effects on sensitive plants that occur in riparian areas and wetlands. The presence of livestock has the potential to add to the spread of noxious weeds. Noxious weeds displace native vegetation, including the habitats of sensitive plants. The proposed action alternative provides for the control of noxious weeds, which would benefit sensitive plant habitat. Trampling and destruction of individual sensitive plants by cattle may occur.

Maintenance, monitoring, and actively moving cattle throughout the allotment can reduce potential impacts to sensitive plants caused by continued grazing. If the design criteria and mitigation measures proposed for noxious weed control for this project area are implemented, then the proposed activities should not increase noxious weed distribution and so not affect sensitive plant populations and habitat.

The effects of the proposed action may impact individual sensitive plants, but are not likely to result in a trend to federal listing or loss of viability of any sensitive plant (vascular or nonvascular) species.

Alternative D –Modification of Alternative C

This alternative is a modification of Alternative C. Alternative D incorporates all of the elements of Alternative C with changes described in an August 6, 2014 letter to the files (USDA FS 2014a). The effects of Alternative D on sensitive plants are the same as those for Alternative C.

Alternative C and Alternative D Adaptive Management Strategies Direct and Indirect effects

If any of the strategies in the adaptive management plan are implemented they would likely have beneficial effects or no effects to sensitive plants. The actual implementation of these strategies (listed below) would most likely not have any adverse effect on sensitive plants as long as all BMP's and mitigation measures are followed during implementation. The installation of fencing, upland water developments, and cattle guards would be evaluated before implementation for placement away from sensitive plant areas and therefore would not affect sensitive plants.

Implement strategies for reducing re-grazing of pastures;

1. • install additional pasture fencing, cattle guards, or other structures to reduce livestock drift between pastures,
2. • alter pasture rotation,
3. • alter use periods for pastures,
4. • increase pasture fence maintenance frequency,
5. • increase range riding.

Implement strategies for reducing livestock use of riparian habitats;

1. • install additional upland water developments,
2. • increase range riding.

Implement strategies for reducing site-specific impacts to riparian habitats / function;

1. • re-build / armor livestock crossing / watering structures,
2. • install exclosure fencing around impacted riparian areas,
3. • plant native vegetation to shade stream and stabilize banks.
- 4. Reduce livestock numbers and / or grazing season.

4. Cumulative Effects

Area - In general, effects on sensitive plants are site specific and are not disturbed over the entire analysis area. The analysis area for cumulative effects to sensitive plants is the treatment unit or activity area. The effects of past, present, and reasonably foreseeable future actions to sensitive plants typically involve the area of disturbance itself and does not move outside the area disturbed.

Time - The time bounding for cumulative effects encompasses previous disturbances from prior wildfire, timber harvest, and grazing. Disturbance to sensitive plants and habitats can last for decades. For reasonably foreseeable future actions, the bounding is five years in the future. No additional projects and treatments, in addition to the proposed action, would have large scale, detrimental effects to sensitive plants and sensitive plant habitats are anticipated within the activity area. Continued cattle grazing, road maintenance, and recreational activities are anticipated to be the reasonably foreseeable future events. I considered other Forest Service,

public, and private activities that overlapped in time or space in the vicinity of this project when analyzing cumulative effects, as well as recommending design elements and mitigation. They included Hanlon and Scotchman Colville National Forest vegetation projects, restoration projects of the Public Utility District and Kalispel Confederated Tribe, as well as other Colville National Forest projects (crib dam removal, instream wood placement in the Upper Middle Branch of LeClerc and Fourth of July Creeks, West Branch of LeClerc road relocation, and culvert replacements on the East and West Branches of LeClerc Creeks).

The combined effects of these projects, cattle grazing and noxious weeds could negatively affect sensitive plant species over their ranges. With the addition of the design elements noted below, and those included to protect Riparian Habitat Conservation Areas, no effects to sensitive plant population viability are anticipated from this project and therefore no cumulative effects are anticipated.

Indirectly, the spread of invasive plants and soil compaction can cause effects to sensitive plants. These factors can result in degraded habitat poorly suited or no longer ecologically capable of supporting sustainable populations of species of interest. Management requirements to reduce the potential for weed spread are in place. Alternative D would affect fewer weed sites than what has occurred in the past (Noxious Weeds Report-Bolyard 2014).

5. Validation

Risk assessment, effects, and findings described above are only valid if the mitigation measures described below are implemented. If the mitigation measures are implemented, the Project may have an impact on individuals, but is not likely to cause a trend to federal listing or loss of viability. Adherence to Forest Plan standards and guidelines in future projects will prevent adverse effects to sensitive plants. There are no irreversible or irretrievable effects associated with the Project.

I conducted a review of relevant scientific information regarding sensitive plant potential and occurrence for this project. Sensitive plant surveys and documentation were conducted according to established protocols. There is always the possibility of incomplete or unavailable information, and risk. I am not aware of any responsible opposing views concerning the analysis of the effects of this project on sensitive plants.

6. Design Elements and/or Mitigations

All Proposed Activities - Sensitive Plants

Design Element 1: If sensitive plant species are found in the planning area while project activities and treatments are occurring, the Forest Botanist or their designee would be consulted as to measures required to protect the species and its essential habitat.

Revegetation

Design Element 2: Revegetate where soil is disturbed by project activities. The goal is to provide long-term soil cover and reduce the risk of weed infestation. Locally collected native plant materials are the first choice in revegetation, but non-native, non-invasive plant species may also be used (USDA FS 2008 and 2014C).

III. REFERENCES

U.S. Department of Agriculture, Forest Service. 1988. Colville National Forest – Land and Resource Management Plan. 181 pgs.

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This analysis and report represents best professional judgment based on observations of the project area, consultation with other resource professionals, and a review of the best available scientific information

Report prepared by:

/s/ Kathy Ahlenslager

Appendix 1. Habitats of Documented (D) and Suspected (S) R6 (USDA FS 2011) Sensitive Plant Species for the Colville National Forest, January 2014.

Vascular Species	D or S	Habitats
Meadow pussy-toes (<i>Antennaria corymbosa</i>)	D	Moist meadows, stream-sides, and moist open forests, 5000 ft.
Nuttall's pussy-toes (<i>Antennaria parvifolia</i>)	D	Dry, open areas with sandy or gravelly soil along rivers, creeks, or lake shores, usually in ponderosa pine forests, 1400-2600 ft.
Least bladderly milk vetch (<i>Astragalus microcystis</i>)	D	Gravelly to sandy areas, from riverbanks to open forests, 1400-6200 ft.
Upswept moonwort (<i>Botrychium ascendens</i>)	D	Coniferous forests, in wet and dry meadows, roadsides, ravines, and along perennial streams, 2100-6400 ft.
Crenulate moonwort (<i>Botrychium crenulatum</i>)	D	Western red-cedar/western hemlock forests, stream-banks, and floodplains, 2030-5500 ft.
Western moonwort (<i>Botrychium hesperium</i>)	D	Sagebrush shrub-lands and, moist or dry meadows, 2700-6300 ft.
Skinny moonwort (<i>Botrychium lineare</i>)	D	Western red-cedar/western hemlock forests, stream-banks, and floodplains, 2000-4000 ft.
Two-spiked moonwort (<i>Botrychium paradoxum</i>)	D	Late seral red-cedar/western hemlock forests on floodplains, stream terraces near perennial or intermittent streams, compacted old roadbeds, early seral lodgepole, or grazed homestead meadows, 2400-6400 ft.
Stalked moonwort (<i>Botrychium pedunculosum</i>)	D	Moist or dry meadows, along perennial streams, and in coniferous forests, 1800 to 6300 ft.
Hair-like sedge (<i>Carex capillaris</i>)	D	Stream-banks, wet meadows, wet ledges, and marshy lake shores, 2800-6500 ft.
Bristly sedge (<i>Carex comosa</i>)	D	Marshes, lake shores, and wet meadows, to 2000 ft.
Yellow bog sedge (<i>Carex gynocrates</i>)	S	Sphagnum bogs, forested wetlands and other wet marshy places, 2600-3800 ft.
Poor sedge (<i>Carex magellanica</i> ssp. <i>irrigua</i>)	D	Fens, bogs, shady wet meadows, shrub wetlands, and ponds, 1600-7000 ft.
Smoky Mountain sedge (<i>Carex proposita</i>)	D	Rocky slopes and ridges, often on talus or granite substrate, near or above tree line.
Beaked sedge (<i>Carex rostrata</i>)	D	Quaking or floating peat, 4500-5000 ft.
Many-headed sedge (<i>Carex sychnocephala</i>)	S	Moist or wet ground adjacent to marshes or along lake shores, 1000-3000 ft.
Quill sedge (<i>Carex tenera</i>)	D	Wetlands, 3000 ft.
Northern-golden carpet (<i>Chrysosplenium tetrandrum</i>)	S	Seeps, rock crevices, wet banks, and other open, wet places at lower to mid-elevations.
Bulb-bearing water hemlock (<i>Cicuta bulbifera</i>)	D	Edges of marshes, lake margins, in bogs, wet meadows, shallow standing water, or along slow moving streams, 2200-3720 ft.

Table 1 Continued.		
Vascular Species	D or S	Habitats
Long-bract frog orchid (<i>Coeloglossum viride</i>)	S	In aspen stands within coniferous forests of Engelmann spruce, Douglas fir, or Sitka alder, 3800-4500 ft.
Stellar's rockbrake (<i>Cryptogramma stelleri</i>)	D	Moist, shaded cliffs and ledges, commonly on limestone cliffs, 3000-6000 ft.
Yellow lady's slipper (<i>Cypripedium parviflorum</i>)	D	Bogs and wet forests, perennial streams on limestone rock under mixed coniferous forest, 2100-3440 ft.
Yellow mountain avens (<i>Dryas drummondii</i>)	D	Crevices of steep, rocky, dry cliffs, and on limestone rock along rivers, 1900 to 6800 ft.
Crested shield fern (<i>Dryopteris cristata</i>)	D	Fens, wet meadows and wooded swamps, 2150-4100 ft.
Green keeled cotton-grass (<i>Eriophorum viridicarinatum</i>)	D	Cold, sometimes calcareous, swamps and bogs, 2000-6600 ft.
Arctic aster (<i>Eurybia merita</i>)	D	Open, rocky places, rock crevices, and unstable slopes, mostly at high elevations
Creeping snowberry (<i>Gaultheria hispidula</i>)	D	Sphagnum bogs and forests, 3000-6000 ft.
Water avens (<i>Geum rivale</i>)	D	Wet meadows, bogs, riparian zones along perennial streams, and moist old pastures, 2500-6400 ft
Sandberg desert parsley (<i>Lomatium sandbergii</i>)	D	Dry, rocky, or open slopes and ridges in the upper montane to subalpine zones.
Bog clubmoss (<i>Lycopodiella inundata</i>)	S	Sphagnum bogs, wet, sandy places, wetlands near lakes, and swampy ground, 1800 ft.
Treelike clubmoss (<i>Lycopodium dendroideum</i>)	D	Rock outcrops, talus or boulder fields, often with a moss and organic debris layer, ecotone between meadow or wetland and adjacent forest, near the base of large boulders in a fairly dense ground cover, 3000-3650 ft.
Marsh muhly (<i>Muhlenbergia glomerata</i>)	D	Along stream-banks, meadows, marshes, bogs, and the shores of ponds and lakes, 2900-3500 ft.
Mexican muhly (<i>Muhlenbergia mexicana</i> var. <i>mexicana</i>)	D	Moist and wet habitats, such as meadows, wetlands, and seeps.
Adder's tongue (<i>Ophioglossum pusillum</i>)	D	Pastures, old fields, roadside ditches, and flood plain forests in seasonally wet, rather acid soil, 2800-3200 ft.
Common twinpod (<i>Physaria didymocarpa</i>)	S	Steep shale outcrops, rocky flats, talus slopes, dry hillsides, or road cuts, 2000-5400 ft.
Whitebark pine (<i>Pinus albicaulis</i>)	D	Subalpine forests.
Small northern bog-orchid (<i>Platanthera obtusata</i>)	D	Damp or wet places in forests, marshes, bogs, meadows, and along stream-banks, 800 to 5000 ft.
Idaho gooseberry (<i>Ribes oxyacanthoides</i> ssp. <i>irriguum</i>)	D	Along streams, meadow openings near streams, and slopes of moist to dry canyons, 3000-5000 ft.

Table 1 Continued.		
Vascular Species	D or S	Habitats
Lowland toothcup (<i>Rotala ramosior</i>)	S	Riparian wetlands growing below high water, often in a community of small emergent annuals, 2200 ft.
Hoary willow (<i>Salix candida</i>)	D	Bogs, fens, and swampy areas in peat soils, 2000-3000 ft.
MacCall's willow (<i>Salix maccalliana</i>)	D	Bogs, fens, swamps, and marshes in open, low-lying sites in peat soils, 2400-3000 ft.
False mountain willow (<i>Salix pseudomonticola</i>)	D	Fens, 2900 ft.
Black snake-root (<i>Sanicula marilandica</i>)	D	Moist, meadows, riparian flood plains, moist woods, and marsh edges, often on calcareous substrates. 1800-3050 ft.
Strict blue-eyed grass (<i>Sisyrinchium montanum</i>)	D	In small natural seeps or springs at low elevations in Ponderosa pine forests.
Prairie cordgrass (<i>Spartina pectinata</i>)	D	Wet areas such as swales, meadows, edges of marshes and ponds, and along streams and riverbanks, 2000 ft.
Ute ladies' tresses (<i>Spiranthes diluvialis</i>)	S	Moist meadows associated with perennial stream terraces, floodplains, and oxbows; seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels valleys, and lakeshores to 7000 ft.
Flat-leaved bladderwort (<i>Utricularia intermedia</i>)	S	Shallow ponds, slow-moving streams, and wet sedge or rush meadows, to 4000 ft.
Velvet-leaf blueberry (<i>Vaccinium myrtilloides</i>)	S	Dry or moist, sandy or rocky clearings and open forests, also in sphagnum bogs and swamps, 2000-3000 ft.
Kidney-leaved violet (<i>Viola renifolia</i>)	D	Moist, forested sites, and sometimes along ditches or streams, 2300-4400 ft.
Non-vascular Species: Mosses		
Splashzone moss (<i>Scouleria marginata</i>)	S	Semi-aquatic on rocks along the edge of streams.